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MONTHLY NOTICES

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Professor G. H. DARWIN, M.A., LL.D, F.R.S., President, in the Chair.

Frederick Evan Peach, 161 Stanstead Road, Forest Hill, S.E. was balloted for and duly elected a Fellow of the Society.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended :—

W. C. Plummer, The Owens College, Manchester (proposed by William Esson); and

Clement Jennings Taylor, Port Elizabeth, Cape Colony (proposed by L. A. Eddie).

Seventy-six presents were announced as having been received since the last meeting, including, amongst others :—

Berlin Observatory, Resultate aus Beobachtungen 1892–97, and Potsdam Observatory, Photographische Himmelskarte, Band 1, presented by the Observatories : R. Brown, Researches into the origin of the Primitive Constellations of the Greeks, Phœnicians, and Babylonians, presented by Mr. Lynn ; Wilhelm Olbers's Leben und Werke : Neue Reduktion der in 1795 bis 1831 angestellten Beobachtungen von Kometen und kleinen Planeten, presented by Professor Schur.

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A further Investigation concerning the Position Error affecting Eye-estimates of Star Magnitudes. By Alexr. W. Roberts.

In No. 6, vol. lvii. of the *Monthly Notices*, I entered upon an investigation dealing with the amount and nature of the position error affecting visual determinations of star magnitudes. The results obtained in that article were based on an examination of the differences between the direct and reverse magnitude determinations of a group of stars surrounding the short period variable Lac. 5861. Since then it has seemed to me an important addition to the investigation to consider only naked-eye estimates of star magnitudes.

Results based on such estimates would be entirely free from the suspicion that the error might possibly be due to instrumental causes. Further, a comparison could be instituted between the results obtained from naked-eye observations (observations made with both eyes) and the results obtained from telescopic observations (one eye only being used); and this comparison would indicate if the amount and character of the variation were the same whether the right or left eye was used in making the observations.

Several groups of stars were available for the proposed investigation; the same conclusion, however, can be arrived at, and more directly, by considering only two stars, instead of several stars, of a group.

North and south of the well known short period variable *κ Pavonis* are two stars of almost equal magnitude, which have been regularly used along with others in the near neighbourhood as comparison stars for *κ Pavonis.*

The two stars and their positions are

	h m s	° ′ ″
ζ Pavonis	18 28 25	−71 31 50 (1875)
λ Pavonis	18 40 38	−62 19 38

It was the constantly changing magnitudes of these two stars, as observations in varying hour angles were made, that first impressed me with the reality of the phenomenon of position error, and the importance of a thorough investigation as to its nature.

As the hour angle of the stars varies, it is evident that their relative position will also vary. Sub-polo, λ *Pavonis* is the lower of the two stars, and it then seems at least half a magnitude brighter than *ζ Pavonis.*

As the stars rise higher and higher this difference in brightness diminishes, until at an altitude of 50° the two stars seem equal in magnitude. As the stars rise to their upper culmination *ζ Pavonis* becomes the brighter, reaching its maximum brightness relative to λ soon after passing the meridian. It then decreases in brightness as its distance below λ *Pavonis* diminishes,

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